Public Works (1896) Department.

G.O., No. 461 of

Dated 28-5-96

[Despatch Abstract.]

Floods: Proceedings Revenue Department recording assent to remarks Board's Proceedings submitting to Government the Collector's report on the Tambraparni — in December 1895, communicated to the Superintending Engineer, VI Circle, with an intimation to the Revenue Department that the report on the damage done to irrigation works by the above floods has already been dealt with.

F.W. 28.
2,000—25-10-95.

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

F 21 2,000—18-2-95.

P. W. CURRENT No. 41463

Govt. of {1896} Madras.

REVENUE.

To

The Public Works Department

Dated
Recd. } Encl.

Mis. R. G.O., 29th April 1896, No. 1603.

SUBJECT.

Recording with remarks the Report on the Tambraparni floods of December 1895.

Ro. 3831 of 28-4-96.

Perusal sent for 30 days. Rec'd 15/5/96 Exd 1/ 30/5 Recd 2-5-96

P.W.C. No. 461 Dd 28 May 1896

Communicated to the Superintending Engineer 7th Circle for information.

2 The report referred to in para 2 of the above order has been dealt with in G.O. 3831 dd 28-4-96.

Recd 11/5 Sd

To The Chief Engr for duty
" Supdg. Engr 7th circle
" Exr P.W.D. accounts
" Rev: department

Recd

Please put up on the damages

2-5-96

RK

RECEIVED 29 MAY 96

Revenue Department.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

——:::——

Read Proceedings of the Board of Revenue, Revenue Settlement, dated 2nd March 1896, No.1074 Mis, approving and sanctioning the proposals of the Collector of Tinnevelly, to postpone kists and to allow ryots to grow dry crops on payment of dry assessment on certain wet lands in the Srivaikuntam taluk affected by the Tambraparni floods of December 1895.

Read also Proceedings of the Board of Revenue, Revenue Settlement, dated 3rd March 1896, No.1087 Mis, approving the proposal of the Collector of Tinnevelly to postpone the kists of February and March in the Manur Tank in respect of the irrigated lands lying under the Manur Tank in the Tinnevelly Taluk.

Read also Proceedings of the Board of Revenue, Revenue Settlement, dated 5th March 1896, No.36. (× Copy attached).

Order thereon, No.1603 Mis., d/29th April 1896.

Recorded with the following remarks:-

(1) It is presumed that the anticipated remission of Rs.15000 referred to in para 3 of the Collector's letter dated 1st March 1896 Dist.No.312, Genl. appertains to lands in which both the first and the second crops have failed, the former on account of insufficient supply of water during the South-west Monsoon and the latter on account of the floods.

(2). The reports called for from the Tahsildars regarding the silted up lands should be submitted for the information of Government.

2. The report of the Executive Engineer, Tinnevelly Division referred to in the Collector's report dated 28th February 1896, Dist.No.309 will be considered in the Public Works Department.

(True Extract)

for Ag.Under Secy.to Govt.

To the Board of Revenue, Rev.Sett.
the P.W.Deptt.

PROCEEDINGS OF THE BOARD OF REVENUE
(Revenue Settlement, Land Records and Agriculture).

Read—again Board's Proceedings (Revenue Settlement, Land Records and Agriculture), dated 9th January 1896, No. 129, recording telegram from the Collector of Tinnevelly on the floods in the Tambraparni river in December 1895.

Read—again Board's Proceedings (Revenue Settlement, Land Records and Agriculture), dated 28th February 1896, No. 1023, recording telegram from the Collector of Tinnevelly reporting on the probable amount of remissions which will have to be granted on account of the floods and the cause of delay in submission of the detailed report.

Read—also the following letter from A. W. B. HIGGENS, Esq., Collector of Tinnevelly, to the Secretary to the Commissioner of Revenue Settlement and Director of the Department of Land Records and Agriculture, dated 28th February 1896, Dis. No. 309-Genl. :—

In continuation of my telegrams of the 1st January last and of the 26th instant, I have the honour to submit, for the information of the Board and Government, the following report on the floods in the Tambraparni valley and elsewhere on the 30th and 31st December 1895, and the results of the rainfall of that period in this district.

2. The enclosed tabular statement shows the rainfall registered at the various stations in this district from the 28th to the 31st December. It will be seen that there was a small fall in two stations registered on the 28th December and moderate falls at all stations on the 29th. On the 30th, rain was registered everywhere and the heaviest falls were in the country from the Chittár valley southwards, viz. :—

		INCHES.
Chittár valley	Tenkási	4·59
	Virakeralampudur	6·45
Tambraparni valley	Ambásamudram	*3·75
	Tinnevelly	6·90
	Palamcottah	6·46
	Srívaikuntam	7·60
	Kayalpatnam	4·70
Nángunéri taluk	Nángunéri	7·44
	Radhapuram	7·05
	Kuttanguli	9·37

* Probably at least six inches fall.

Speaking generally the quantity of rain registered increased from north to south. There must, however, have been a very heavy fall at the same period in the hills from which the Tambraparni river takes its rise. Over 30 inches were registered at two forest stations as the result of fourteen days' rain in December, and this was below the truth as the bottles overflowed. There was a considerable fall registered in several stations on the morning of the 31st averaging about half the quantity measured on the previous day.

3. The immediate result of the rainfall was a very great rise of the Tambraparni river, at District Head-quarters beginning from 1 A.M. on the 30th; on that day at 2 P.M. as much as 27 feet of water were registered at the Sulochanam bridge. The river afterwards fell to 17 feet, but rose again in the morning of the 31st and reached about the same maximum height about the same hour as on the previous day, after which it subsided. The depth of water at the bridge on the 30th and 31st was about the same as that reached in 1869, when the bridge gave way. Fortunately on this occasion, as in the floods of 1877, the bridge stood firm. On each day the traffic was stopped temporarily as the flood rose.

4. Owing to the sudden rise of the river, thirteen persons—two men, three women and eight children—who were sleeping on the night of the 29th in a mantapam just above the bridge, were cut off, and being unable to escape, were one by one washed away by the current, and all but one boy, who clung to a tree lower down the stream, were drowned. Efforts were made to rescue them, but no effectual expedient could be devised. I am arranging that the mantapam should be provided with some means of escape from the interior to the roof, which even in this flood was not topped by the water. There were only a few other deaths reported as being due to the flood. It is reported that in Srívaikuntam taluk a considerable number of cattle and sheep perished.

5. The damage done by the flood in Ambásamudram and Tinnevelly taluks consisted chiefly in the breaching of the banks of irrigation channels and a certain amount of damage to roads. Parts of Tinnevelly town were flooded owing to breaches in the river channels, and in the neighbourhood of the Railway station and in villages along the river, a number of mud houses were destroyed. The Collector's and Judge's compounds were completely flooded both on the 30th and 31st. Part of the Cutcherry compound was also flooded, but no damage was done.

6. There was a considerable rise in the Chittár river on account of the heavy rainfall, and this water and the Tambraparni water combined and overflowed and breached the flood banks below their junction, and inundated a considerable portion of Srívaikuntam taluk. The Srívaikuntam anikat, where the water rose to 20 feet on the night of the 30th, sustained considerable damage, but the bridge above it and the head works stood firm. The flood banks and the river channels and several tanks suffered very materially. Detailed particulars of the damage will be found in the Executive Engineer's report which is enclosed. The roads also were badly breached. In Srívaikuntam town, the flood water made its way along the streets and inundated the compounds of most of the houses, destroying many mud-built structures. The District Munsif's Court, Tahsildar's Cutcherry and the Hospital sustained some damage. A great portion of the compound-wall of the Munsif's Court and of the Taluk Cutcherry and the water-pandal attached to the latter collapsed. The Cutcherry compound was considerably silted up. There was one and a half a foot of water in the Cutcherry rooms. The cash, notes and some of the stamps and records were wetted. Stamps to the value of Rs. 73–14–0 were spoilt, and the application has been made to the Board of Revenue (Separate Revenue) to write the amount off the accounts. Considerable damage was done to mud-built houses in villages lower down the river.

7. In Nángunéri taluk, all the rivers were in flood and breaches occurred in about 190 irrigation works, but the big tanks of Nángunéri and Vizianarayanam did not suffer. In other taluks, the damage done to irrigation works was not extraordinary.

8. There was no serious damage done to crops in Ambásamudram or Tinnevelly taluks, and, as far as I am aware, the loss in Nángunéri taluk has not been great. The crops in Srívaikuntam taluk have, as reported in my letter Ref. B on Current No. 272-Gl. of 1896, suffered. In parts of twelve villages, the fields have been wholly or partly silted up, while the crops in other lands have been washed away or damaged. The extent thus affected is reported to be over 2,000 acres.

9. Steps were taken immediately to close the breaches in the irrigation channels and tanks everywhere. The Revenue Authorities and villagers rendered all necessary assistance to the Engineering Department, and the Tahsildars were instructed whenever necessary to put in force Act I of 1858. The channels were most of them opened again a few days after the flood. It is reported that most of the tanks have been provided with ring-bunds and water stored. The Engineer's report does not give the total cost of restoring the damages done to irrigation works and flood banks. It will be gathered, however, that the cost will be very heavy. Damage to the extent of Rs. 9,500 is reported to have been done to minor irrigation works. Estimates to the value of Rs. 3,600 have been sanctioned by me up to date for closing breaches.

10. I do not anticipate any serious loss of revenue. The probable remission due to floods in Srívaikuntam taluk is Rs. 12,000, and probably Rs. 3,000 more will cover the remission on this account in other taluks. In the case of the twelve villages in Srívaikuntam taluk mentioned in paragraph 8, I have asked the Board to grant certain concessions to help the ryots through their difficulties.

11. It is believed that about Rs. 13,000 represents the extra charge to Local Funds on account of damage done to the roads and a chattram tank by the floods, but accurate figures are not at present available.

12. All things considered, it is probable that the heavy rains of the last few days of December 1895 have done more good than harm to the district. No doubt the havoc done by the floods has been considerable, specially in Srívaikuntam taluk, and the cost of repair of works will be very large; but the area actually affected was small. On the other hand, the whole district benefited very greatly by the rain. Without a good downpour it was anticipated that there would be some loss of crops under rainfed tanks everywhere, and that the dry crops generally would have been poor. Now, however, most of the tanks have been filled and the paddy crops are flourishing, and the dry crops have either yielded or will yield a good outturn. The cotton crop particularly is believed to be in a better condition than it has attained for several years.

13. No damage was done to the South Indian Railway line.

14. I much regret the delay in the submission of this report. It has been due to the non-receipt of the Engineer's report which, after several reminders, reached me on the evening of the 27th February. The Superintending Engineer is now in the district and will no doubt endeavour to devise measures to obviate the recurrence of breaches in river banks in the neighbourhood of the Srívaikuntam anikat and the consequent damage to irrigation works and crops.

Enclosure.

From G. B. LAMBERT, Esq., Executive Engineer, Tinnevelly Division, to the Collector of Tinnevelly, dated Palamcottah, 27th February 1896, No. 795.

I have the honour to submit, herewith, the following report on the damage done to irrigation works by the flood of the 30th and 31st December 1895.

I.—Upper Tambraparni channels.

1. *General.*—The flood levels at the anikats across the Tambraparni river in Ambásamudram taluk, viz., Nathiyunni, Kannadian and Kodagan, are lower than the flood level of 1877, the highest recorded. At Kannadian head sluice, the water rose to 0·8 foot below flood level of 1877, and on the mantapam near the river at Sérmádévi to 0·68 foot below flood level of 1877. In Tinnevelly taluk, the water at Palayam channel head sluice was 17·50 feet above the sill or 0·16 foot below the flood level of 1877; at Tinnevelly channel head sluice, the reading was 17·30 foot or 0·79 foot above the flood level of 1877. The flood rose to 27 feet at the Tinnevelly bridge, overtopped the road near Tinnevelly Railway station and did much damage to buildings.

2. The rainfall on the hills at Munandorai in Ambásamudram taluk for the week ending 31st December 1895 was 36·5 inches. The rainfall on the 29th, 30th and 31st December 1895 was as follows:—

	Inches.
Ambásamudram	8·00
Sérmádévi	10·06
Palamcottah	10·86

whilst on the 30th December alone, the following was registered:—

	INCHES.
Ambásamudram	3·75
Sérmádévi	7·80
Palamcottah	7·17

3. Orders were issued to mark with tar the flood level of December 1895 on all important masonry works, and the valves are being connected with the M.S.L.

4. Immediate arrangements were made to put ring-bunds in front of breaches and water was passed down as soon as possible to channels and tanks to save the standing crops.

5. With the exception of the cultivation near the breaches, which has been damaged, all the rest appears to be in good condition.

6. As far as is known, all head sluices were closed as soon as rains set in, and surplus weirs and scouring sluices opened as far as possible, but the flood rose so suddenly, and the cross drainage was so heavy that no measures could have been taken to lessen the damage done. Only one tank breach was reported under Tambraparni channels in Tinnevelly taluk.

7. *North and South Kodamelalaghien channels.*—The temporary palmyra and brush-wood anikat for the supply of this channel was washed away, and breaches have occurred at sites of sluices, temporary and masonry, and opposite hill streams.

8. The tanks under the channels are safe.

9. The cost of repairing the damage is about Rs. 300 and the damage to standing crops is estimated at Rs. 100.

10. *Nathiyunni anikat and channel.*—The rear apron of the anikat has been damaged in two places. The flood bank on left of head sluice has been eroded to a length of 50 feet and should be revetted.

11. The channel has breached in ten places at the sites of temporary sluices.

12. The cost of repairing the damage is about Rs. 500.

13. *Kannadian anikat and channel.*—The coping stones of the anikat have been removed in five places to a length of 25 feet, and the rough-stone apron at the west end has been damaged, as well as the floor and walls of the water-cushion at the eastern portion.

14. The head sluice was closed, but, owing to hill streams crossing the channel, the water overflowed and breached the left bank in several places in the first and second miles. The channel opposite to Korayár weir and below has been silted up to a length of 700 feet and depth of 3 feet. Wings of surplus escapes have been slightly damaged.

15. *Kodagan channel and Ariyanayagipuram anikat.*—Short lengths of cut-stone have been removed from the crest of the anikat. There are two breaches in flood bank of a total length of 600 feet and with a depth from 3 to 10 feet.

16. There were 34 breaches in the channel with depth varying from 2 to 10 feet, and three of the masonry sluices (Nos. 4, 10 and 19) have been destroyed.

17. The approximate cost of repairing the damage is estimated at Rs. 2,150. The channel was opened on the 11th January.

18. *Palayam channel and Palavoor anikat.*—The apron of the anikat has been damaged slightly, otherwise the anikat is in good order.

19. The right flood bank above the head sluice was breached by cross drainage for a length of 208 feet and to a depth of 7 feet. Between the head sluice and Tharuvai, the right flood bank of the river or left bank of the channel was breached in five places.

20. The channel is much silted at mouth of inlet from Omanallur tank. Below this a large bank of silt has been deposited in the channel (220 feet × 70 feet × 3½ feet). This has been carried into the channel from some waste land, which certain ryots unauthorized have converted by lowering into nanja, and by bunding the Omanallur surplus channel have diverted the water to it. This water, unable to find

a free vent, covered the land, until the channel bank was breached and enormous quantity of silt was carried into the channel, completely blocking it. The matter has been brought to the notice of the Collector.

21. At Tharuvai, where the Pachyár crosses the channel, much damage has been done. One hundred feet in length of the 12 feet retaining wall in extension of left wing of the Anjumathagu surplus weirs with bund in rear and the lascars' shed have been washed away. The bund, 340 feet in length and 7 feet in height, between the two surplus weirs, has been carried away. Two thousand one hundred and eighty-five feet of channel has been silted up to an average depth of 5 feet.

22. Besides the breaches in the flood bank above Tharuvai, the channel has breached in 22 places.

23. The silt near Tharuvai was cleared very expeditiously and work was carried out by torch light on the night of the 10th. Water was let down on the evening of the 11th January.

24. The cost of repairing the damage is estimated at Rs. 5,000, and the damage to standing crops will be about Rs. 3,000.

25. *Tinnevelly channel and Seethamalli anikat.*—8·80 feet of water passed over the anikat. The cut-stone on the crest has been washed away for a length of 120 feet, and the rear aprons of the left portions have been much displaced.

26. There were three breaches in the flood bank to a total length of 600 feet with depths varying from 4 feet to 13½ feet. The largest one, 205 feet in length and 13½ feet in depth, occurred near the left wing of the anikat and between it and the head sluice.

27. There were 23 breaches in the channel.

28. The approximate cost of repairing the damage is estimated at Rs. 2,500. The channel was opened and water let down on the 11th January.

II.—Marudur Anikat System.

1. *Marudur Anikat.*—The maximum depths of water gauged on 30th December 1895 were as follows:—

	Front.	Rear.
	FT.	FT.
Melakal head sluice	14·80	10·10
Kilakal do.	16·50	13·20

2. The maximum flood level of 1877 was, as recorded in this office, 15·73 and 17·30 on Melakal and Kilakal head sluices. The rear wing of the anikat on the Melakal side was topped.

3. Seven upright stones of Mattappa escape were washed away, and others were twisted on their base; the south-east wing of the escape, being undermined, has cracked. The front cut-stone beams of Nos. 1, 5 and 6 sand vents were displaced.

4. Many of the boulders in rear of the anikat wall are washed away and almost all the nanul and korai grass in the river-bed below the anikat has been either carried away or is covered over with silt.

5. The head sluices were closed during the flood, and the two sand vents near the Melakal head sluice, having screw gearing shutters, were fully opened.

6. There appears to be much silt in front of the anikat wall which is being slowly drawn through the scouring sluices.

7. In addition to the river flood the rainfall was abnormally heavy being 7·65 inches on the 30th December 1895.

8. Water was passed for irrigation in the Melakal on the 6th January and in the Kilakal on the 12th idem.

9. Opposite all breaches, the fields for a length of 200 feet or 300 feet were silted up to a depth of 1 foot to 1½ feet, and some fields were scoured out.

Melakal Channel.

10. *Melakal channel.*—The Tambraparni river water-mark is visible up to the left bank of the channel and in some places, especially in the second mile, the mark is almost to the top of the bank. Almost all the fields bordering the river from the head to Adichanallur hill, a distance of 10 miles, were under water and silted to some extent. The river water-mark is visible in rear of Pottakulam of Karunkulam, and the depth of water on the road between Thuthukudi tank and Adichanallur hill varies from 3 to 8 feet.

11. The rear parapet of sluice No. 1 has fallen down, and the water rose to 2 feet on the crest of Masani escape.

12. The left bank is breached from the 23rd sluice in 8th mile downwards where the bank was overtopped by the flood. The ryots and lascars put earth and branches of trees in several places and prevented the bank from breaching, thus saving the Kollivoikulam and Nattarkulam tanks.

13. The Thuthukudi escape passed, in addition to the water through its sand vents, a depth of 3·68 feet over its body wall which is 2 feet in excess of that passed over in 1877. Sluice No. 23 is entirely destroyed.

14. *Mukkaver channel.*—Small cuts were made in the banks to save the tanks under the channel. There are seven breaches in the left bank between 7th and 12th mile stones, caused by water overtopping the bund.

15. *Seidunganullurkulam.*—The tank received the flood through the breaches in the left bank of the Melakal channel opposite to the tank and breached in five places owing to the escape being inadequate to pass this unforeseen discharge.

16. *Thuthukudi tank.*—This tank breached in six places owing to the left bank of the Melakal channel breaching opposite to the tank.

17. *Karunkulam-Krishnenkulam.*—One breach cut near the hill to save the tank.

18. *Karunkulam-Periakulam.*—The tank received the flood discharge through the breach in the left bank of the Melakal channel near the supply sluice. The ryots cut one breach to save the tank.

19. *Karunkulam-Pottaikulam.*—This tank also received flood discharge through the breach in twelfth mile of Melakal channel, and the ryots cut two breaches near the hill to save the tank.

20. *Kolvoi branch channel.*—Owing to the extraordinary drainage entering the channel in addition to the extra quantity passing into it from the Melakal channel, the left bank was breached in four places. The channel has no head sluice.

21. *Ninarkulam.*—Supplied by the Kolvoi branch channel. This tank is breached in two places and several scour holes formed where water overtopped the bund.

22. *Vellur tank.*—One breach was cut by the ryots under the orders of the Superintendent to save the tank as it was in danger. 3·80 feet water passed over the 300 feet escape near Adichanallur hill, 1·40 feet over the second escape of 37 feet and 1·40 feet over the 200 feet at the south-east end. The sluices to Tenkarai tank were fully opened at 5-30 A.M. on the 30th December 1895.

23. *Tenkarai tank.*—One breach was cut by the ryots under orders of the Superintendent to save the tank. 1·90 feet passed over the 90 feet escape with ten sand vents opened. The escape to Notchikulam was opened.

24. *Notchikulam.*—One breach caused by the water overtopping the bund. Other breaches prevented by ryots placing earth and branches over bund here and there. 1·40 feet passed over the 30 feet escape.

25. *Kilaputhukulam.*—Breached in five places.

26. *Mudalaimoolikulam.*—Four small breaches. The ryots opened the ends of the bund and passed away much of the flood.

27. *Thamangolam.*—One long breach where the water overtopped the bund. The ryots prevented other breaches by putting earth and brushwood on the bund here and there.

Kilakal Channel.

28. *Kilakal channel.*—The flood of the river passed over its left bank or margin above the Marudur anikat and entered the Kilakal channel breaching it in several places; in addition to which owing to the abnormally heavy rainfall two rain-fed Imperial tanks (Kaliavur, Periakulam and Rajankulam) above the Kilakal channel breached and their flood water entered the channel. The channel banks were breached and eroded in 25 places, and the rear wing of sluice No. 7 has fallen down.

29. *Srivaikuntam-Periakulam tank.*—Owing to a large breach in the left flood bank above Srivaikuntam anikat which forms a portion of the bund of the tank and which carries a Local Fund road, this tank has breached in four places and sluice No. 7, with the exception of its front head, has been washed away. Five feet depth of water passed over the surplus escapes.

30. *Perur tank.*—This tank breached in ten places owing to the extraordinary surplus passing from the Srivaikuntam surplus escape and to the abnormal rainfall. Three and-a-half feet depth of water passed over surplus escape. The rear wings of sluice No. 3 are badly cracked, and sluice No. 5 has been washed away, except its front head.

31. *Sevalai tank.*—This tank breached at the Local Fund road ramp near the escape owing to the extraordinary surplus from Perur tank and to the abnormal rainfall.

32. *Flood bank and Local Fund road along the surplus channel from Sevalai tank to Perungolam tank.*—The ramp, road and flood bank were breached in places for a total length of 700 feet and average depth of 5 feet owing to the water of the Sevalai tank overtopping the bund at the Local Fund road ramp and owing to the extraordinary discharge from the Sevalai escape.

33. *Perungolam tank.*—The flood passed over the fields and Local Fund road through the Sevalai village into the fields below Perungolam tank and thus saved the latter tank.

34. The ryots made a cut in the north end 25 feet in length and 7 feet deep to pass the abnormal rainfall and save the tank.

35. *Perungolam escape channel.*—This channel breached in four places.

36. *Issangankulam tank.*—This tank receives the drainage from the Vallanâd hills, but, owing to the abnormal rainfall, the tank was in danger and the ryots under the orders of the Superintendent made a cut, 60 feet in length and 3 feet in depth, at the north end, thus saving the tank.

37. *Kylasaperi tank.*—This tank receives the surplus of Issangankulam tank and breached in four places.

38. The following two rainfed tanks are referred to as having breached and damaged the Kilakal channel.

39. *Kaliavur Periakulam.*—This tank breached in several places, water overtopping the bund.

40. *Rajankulam tank.*—This tank bund was also overtopped by the water and breached in six places for a total length of 630 feet and to an average depth of $3\frac{1}{2}$ feet. The cross bund, 460 feet long and 3 feet deep, was washed away.

III.—Srivaikuntam Anikat System.

1. The maximum depths of water gauged were as follows:—

	Front.	Rear.
	FT.	FT.
North Main channel head-sluice	20·00	14·50
South „ „	20·00	11·50

The gauge readings in front of the anikat were as follows:—

—	6 A.M.	12 Noon.	4 P.M.	6 P.M.	8 P.M.
29th December 1895	0·70	0·70	..	0·75	..
30th Do.	13·40	17·20	18·30	19·75	20·00
31st Do.	16·00	17·20	..	17·80	..
1st January 1896	15·35	14·00	..	12·30	..
2nd Do.	10·70	10·50	..	..	..

2. The water began to pass over the anikat at 2 A.M. on the 30th and at about 8 P.M. or so the flood bank above the anikat was breached. Water rose to the stoning course of the bridge over South Main channel head-sluice, and to 2·25 feet over the highest recorded flood-level of 1877 or to 12 feet over the crest of the anikat.

3. The rainfall at Pudugudi on the 29th, 30th and 31st December 1895 amounted to 11·38 inches, 7·65 inches being registered on the 30th.

4. The head-sluices were fully closed at 4 P.M. on 30th December 1895. The South Main channel was opened again on the 24th January, and the North Main channel on the 9th February.

5. The rear apron of the anikat and a portion of the retaining wall are much damaged. The damage to the anikat is estimated at Rs. 15,300.

6. Tar marks have been ordered to be put on all important masonry works to show the flood-level.

7. The damage to crops is chiefly opposite breaches, where in some places the crops were rooted out and carried away, and in others were silted over with sand to a depth of about one foot.

8. There was no postal or telegraphic communication whilst the floods lasted.

Flood Banks.

9. *Right flood-bank above Srivaikuntam anikat.*—No particular damage was done except slight erosion here and there especially when a tree or masonry wall obstructed the free flow of water.

10. *Left flood-bank above Srivaikuntam anikat.*—The water rose to about 2½ feet from the top of the bank. Owing to this extraordinary flood and abnormal rainfall, and the inferior nature of the soil, the bank melted and breached in the following places:—

	Length.	Average depth.
	FT.	FT.
Rear of Munsif's Court-house. Higher up half of the bank for a length of 40 feet washed away	310	15
Higher up another breach as far as the Srivaikuntam temple.	1,280	15
Higher up at the site of the old head-sluice to Srivaikuntam-Periakulam tank	550	15

The bank at this last breach carries a Local Fund road, and forms the southern portion of bund of Srivaikuntam-Periakulam tank; it is scoured out to 8 feet below ground level.

11. The old river wall at the temple and below it is very much damaged and, but for its existence, it is probable that a large portion of the town of Srivaikuntam would have been washed away.

12. The compound walls of the Munsif's Court and Tahsildar's Cutcherry have fallen down; about 4 feet of water was on the floor of the former and 1½ feet on that of the latter. About 2 feet water was in the Hospital and much of the property of the Apothecary was washed away, some of his boxes and those belonging to the Cutcherry were found at Erell and Mangalakurichi. A large number of the mud houses in the vicinity of the Munsif's Court and Cutcherry have fallen down.

13. *Right flood-bank below Srivaikuntam anikat.*—The bank has breached in four places as follows:—

(i) Just above Azhvár Tirunagiri for a length of 400 feet owing to the contraction of the river.

(ii) At Kuvangani temple for a length of 250 feet owing to the heading-up and twisting of the water at the temple walls. The temple walls and the temple itself have fallen down.

(iii) and (iv). Near Sethukuvoitham village for lengths of 840 feet and 810 feet. The village is on the river margin, and between the river and the bank. The breaches may have been caused by the villagers to save their lives.

The bank below the village has slipped for 400 feet, and a further slip of 900 feet has taken place at Authûr.

14. The flood does not appear to have risen very high below Kinangany breach owing probably to the several breaches above, the water finding its way elsewhere and not back to the river.

15. *New left flood-bank below Srivaikuntam anikat.*—This bank, which as far as Mangalakurchi forms also the right bank of the North Main Channel, was breached in five places—

	Length.	Average depth.
	FT.	FT.
First mile, Paracheri Vali	280	16
Third mile, Kalangudi limits	510	16
Fourth mile, Velen Paracheri	800	15
Ninth mile, Eral limits	550	12
Thirteenth mile, Mukkani limits	550	16

16. At Appencoil and Sivaramamanglam, the villagers had protected the bank with spikes and brushwood to save their villages. Here the bank is turned round the village to protect it, and the water way of the river is much contracted.

17. *Old left flood-bank below Srivaikuntam anikat.*—The retirement of the bank was sanctioned in G.O., No. 399 I., dated 20th May 1882, and Government in Order No. 1108 I., dated 8th December 1884, directed that "as a special case, the old flood-bank shall be maintained to its former section."

18. The flood of December overtopped the bank, and washed it away to a very large extent from its head to its end, a distance of 7½ miles. The villages between the old and new banks were under water and all the mud houses have fallen down. Some ten lives were reported lost and much property was carried to the sea; with great difficulty the remainder saved their lives.

North Main Channel.

19. *General.*—Owing to the breaches in the left flood-bank above Srivaikuntam anikat, the flood entered the channel some 400 feet below the head-sluice and for 2,000 feet silted it up to a depth of 3 feet; whilst in two portions of this for lengths of 230 feet and 110 feet, the silt is up to the top of revetment, and in a third portion, for 120 feet the silt is 5 feet deep.

20. In the 4th mile the channel for a length of 270 feet has silted up above the original ground owing to a breach in the left flood-bank.

21. The largest breaches are at Eral near Korkai head-sluice. Here the water rose to 2½ feet over the rough stone bye-wash and overtopped the banks of the channel. For a length of 230 feet the channel has been scoured to 12 feet below normal-bed-level.

22. The Eral syphon was entirely submerged on both sides, and there was 2·5 feet over front and 0·10 foot over rear parapet walls.

23. *Arumugamangalam head-sluice, tank and escape.*—The head-sluice and tank-escape were fully opened. 2·60 feet of water pased over the escape. The tank-bund which carries a road breached at south-west end near the head-sluice for a length of 900 feet and 800 feet below this for a length of about 420 feet, and to a depth of 16 feet below the top of the road.

24. As soon as the floods subsided, the ryots very sensibly threw a bund across the tank just below the second breach and stored a month's supply of water in their tank.

25. Sluice No. 1 is undermined and damaged very much and will have to be reconstructed.

26. *Eral outlet.*—The outlet was fully opened and no damage occurred to Peikulam, Pottaikulam and Korampullam tanks.

27. *Perungolam tank-escape channel.*—This channel which enters the North Main Channel at Eral was not in flood, but owing to the flood-water from breaches in Srívaikuntam, Sevalai and Perur tanks, the flood-bank below the bridge and about a furlong above the bye-wash was breached.

28. *Iyencoil sluice in ninth mile of North Main Channel.*—Front head damaged and fallen down.

29. *Korkai channel.*—Owing to the water overtopping the banks, the channel was breached in several places.

30. *Korkai tank.*—The channel enters the tank through a culvert under the Local Fund road. The road acted as a flood-bank and saved the tank, the water being passed round both ends of the tank-bund.

31. *Palayacoil tank.*—This tank receives a part of the Arumugamangalam tank surplus, but the banks being low were overtopped and breached in 17 places.

32. *Peikulam tank.*—Water overtopped the bank in several places, but was prevented from breaching by the ryots putting earth and brushwood over the low places and opening in time the double dam in the North Main Channel. As soon as the flood subsided, erected a dam in the North Main Channel at Palayacoil bridge, thus storing a good supply in their tank.

South Main Channel.

33. *General.*—At Azhvár Tirunagari the right flood-bank below Srívaikuntam anikat breached and the flood entered the channel from the north, and from the south part of the surplus discharge from the Vellore and Tenkarai tanks met the flood of the river and passed down the channel, heading-up as far as the head-sluice.

34. The channel was silted almost to the top of the berme for a length of 6,000 feet which will cost about Rs. 2,500 to remove. The channel was also silted at the head and end. There are in addition nine small breaches in the left bank and three in the right.

35. Authûr channel head-sluice was raised to pass 3 feet water, and the shutters of Kadamba head-sluice were opened to pass some of the surplus. The greatest depth of water on Kadamba head-sluice floor was 8 feet on the 30th December 1895.

36. *Authûr channel*—has been silted for about a mile, which will cost about Rs. 1,000 to remove. There are several breaches in both banks of the channel below the regulator caused by the river entering it by a breach in the south flood-bank at Karangany. When this breach occurred the head-sluice was closed. A sluice in the left bank below Sethukuvoithan surplus-weir is washed away owing to the Sethukuvoithan tank breaching.

37. *Seethukuvoithan channel and tank.*—On account of the breach in the right flood-bank at Karangany the channel is so silted up that it is difficult to trace where it was. The flood passing down the channel and over the country entered the tank, breached it in several places and passed into the Authûr channel. This is a devasthanam channel and tank, and is not to be repaired by Government.

38. *Kadamba tank.*—2·8 feet passed over the escape and a portion down the old drain at the south-east end. The tank appearing to be in danger the ryots and lascar opened one cut near the surplus weir and another at the west end, thus saving the tank. The surplus overtopped the flood banks of the drainage channel and entered the Sethukuvoithan tank breaching it in four places.

39. *Poriyur head-sluice.*—This sluice in the Kadamba tank supplies eleven tanks. It was so well regulated that, with the exception of two small breaches, which will

cost about Rs. 50 to close, there was no damage to the channel and tanks below. There was 7·3 feet in front of head-sluice or 1·80 feet above M.F.L.

IV. Imperial Irrigation—Works-accounts not kept.

1. *General.*—The amount of rainfall registered on the 29th, 30th, and 31st December 1895 was as follows:—

—	29th.	30th.	31st.	Total.
	inches.	inches.	inches.	inches.
Palamcottah	0·37	7·17	3·32	10·86
Sankaranayinárkóyil	0·71	3·02	1·80	5·53
Tenkási	0·61	4·59	2·74	7·94
Ambásamudram	1·00	3·75	3·25	8·00
Nángunéri	0·85	7·44	4·70	12·99
Srivilliputtár	..	On 30th and 31st.		3·45
Sérmádévi	0·96	7·80	1·30	10·06

The rainfall on the hills at Sengatheri in Nángunéri taluk for the week ending 31st December 1895 was 32·42 inches, and Munandorai in Ambásamudram taluk for the same period 36·5 inches.

2. The flood levels of the Chittár and its tributaries are much lower than those of 1877, whilst the flood levels of the Jambunadi, Ramanadi, Varnanadi and Gadamanadi tributaries of the Tambraparni are from six to nine inches higher than those of 1877.

3. Immediate arrangements were made to put ring bunds in front of breaches, and water has been passed in channels and tanks filled sufficiently to bring to maturity the crops under them.

4. With the exception of the cultivation in close proximity to the breaches, all the rest is very healthy and promises to yield a good crop.

5. Orders have been issued to mark with tar the flood level on all the important masonry works, and it is reported they are being connected with the M.S.L.

6. A statement showing damage to Imperial Irrigation works is herewith enclosed.

Read—also the following letter from A. W. B. HIGGENS, Esq., Collector of Tinnevelly, to the Secretary to the Commissioner of Revenue Settlement and Director of the Department of Land Records and Agriculture, dated 1st March 1896, Dis. No. 312-Gl.:—

In continuation of my report regarding the recent floods (Dis. No. 309, dated 28th February 1896), I have the honour to submit the following further information.

2. The extent of wet lands silted up owing to breaches is reported to be 410 acres in the Srívaikuntam taluk and the cost of restoration of these lands is estimated at Rs. 8,000. An extent of 55 acres is said to have been similarly affected in two villages of the Tinnevelly taluk, but complete information is not available for this or the other taluks. Tahsildars have been called on to submit a complete list. As a measure of relief, I have issued instructions to Tahsildars to grant loans to ryots where necessary, for the restoration of lands and to proclaim to the ryots that they can obtain loans for the purpose. Some ryots have already applied for loans in the Tinnevelly taluk.

3. The amount of remissions already reported as due to floods, viz., Rs. 15,000, represents remissions in respect of compounded lands on which the crops failed during the south-west monsoon. Besides these there are other lands on which crops were raised in the south-west monsoon, but which were silted up during the flood. Tahsildars have been called on to report the extent of such lands; and, if necessary, the information will be submitted to the Board.

Resolution—dated 5th March 1896, No. 36.

The Collector's report on the heavy floods which occurred in the Tambraparni river on the 30th and 31st December last and on the damage caused thereby will be submitted for the information of Government. With a view to brevity, the Board refrains from repeating the Collector's description.

2. The Collector's letter is supplemented by one from the Executive Engineer which gives particulars of the extensive damage done to irrigation works.

There has not yet been time to estimate fully the cost of the necessary repairs; but the total of the Executive Engineer's figures, so far as he has been able to furnish them, amounts to Rs. 54,420. The total cost will apparently greatly exceed this figure.

3. As regards the minor irrigation works in charge of the Revenue Department in the several taluks which have suffered from the floods, the Collector estimates the damages at Rs. 9,500. Repairs to the extent of Rs. 3,600 have already been sanctioned.

4. Wherever possible, prompt measures were taken to close the breaches or put up ring bunds, so as to save some supply for the standing crops. On the whole, the damage done to the standing paddy crop does not appear to have been as serious as might have been anticipated. The total area on which the crop was wholly or partially destroyed is estimated by the Collector at about 2,000 acres, and he does not consider that any large remissions will be claimable. In the Srívaikuntam taluk, a remission of about Rs. 12,000 will be necessary on compounded double crop lands, and it is believed that about Rs. 3,000 will meet requirements in other taluks. In addition to this, some remission may be necessary on single crop wet lands on which the crops raised in the south-west monsoon were silted up during the floods. The Collector promises to report further on the subject.

5. In twelve villages of the Srívaikuntam taluk the Collector recommended that the ryots should be allowed the concession of growing dry crops on their wet lands till the end of March, on payment of dry assessment only, even though Government water may be used; that the collection of assessment which is likely to be remitted may be postponed until the settlement of the demand at the jamabandi; and that in four of these villages which suffered most from the floods, the first and second kists falling in February and March should be postponed and the entire demand collected half in April and half in May. A similar proposal was made in regard to lands under the Manur tank which irrigated two villages in the Tinnevelly taluk. All the above recommendations have been approved in Board's Proceedings, dated 2nd March 1896, No. 1074-A, and 3rd March 1896, No. 1087, copies of which have been submitted to Government.

6. It is stated that in the Srívaikuntam taluk, some 410 acres of wet land have been nearly silted up and that the cost of removing the silt will amount to about Rs. 8,000. In the Tinnevelly taluk also, some 55 acres are reported to be similarly silted up. As a measure of relief to the owners of these lands, the Collector has taken steps to grant loans under the Loans Acts to all who may apply.

7. The Collector points out that, though the heavy flood caused lamentable havoc among the irrigation works, and some destruction of crops on a small area, the heavy rain was a Godsend to the district as a whole and has secured a good all-round harvest of which there was at that time little prospect.

(True Copies and Extract.)

(Signed) P. RAJARATNA MUDALIAR,
Secretary.

To the Secretary to Government, Revenue Department,
with two enclosures in original (to be returned).
" Collector of Tinnevelly.
" Land Revenue Department.

Exd. J. P. Oliver.

REVENUE DEPARTMENT.

1896.

Board of Revenue

(Revenue Settlement, Land Records and Agriculture),

MADRAS.

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Printed March 20th.

Proceedings, 5th March 1896, *No.* 36.

Floods.—Submitting to Government the Collector's report on the Tambraparni—in December 1895.

[25]
1,000—8-2-00.

Local and Municipal Department.

CHIEF SECRETARIAT. MADRAS.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

READ ~~the following paper:—~~

Again G.O., No.1985 M., dated 18th December 1894.

Read also the following:-

From the Public Works Department, dated 6th April 1896, No. 328 I., transferring note by the Chief Engineer, No.74 I., dated 28th March 1896, approving with remark the estimate of Rs.31,600 for the protective bund for Rajahmnudry town.

ORDER, No.797 M.Mis., dated 11th May 1896.

Para.3 of the Superintending Engineer's letter will be referred to the Municipal Council for remarks which should be submitted through the Collector.

(True Extract)

G.D.Sanders

Under Secretary, P.W.D.,
for Chief Secretary.

To

The Chairman, Municipal Council, Rajahmundry,
(with plans and estimates to be returned).
,, Public Works Department.

Govt. of {1896} Madras.

Local and Municipal Department.

P. W. CURRENT No. 4452

Rec'd 13-5-96

To

The Public Works Department

No. 462 I dy 28 May 1896

Proceedings, dated 11th May 1896,
No. 797 M. Mis.

Subject.

Bund

Referring to the Munic. Council, Rajahmundry, for remarks para: 3 of the letter from the Superintending Engineer 1st Circle regarding the protective ——— for the town.

6-4-96. Ro. 328 I.
1-95. " G.
10-94. " 3270 C
9-94. " 2908 C
18-8-94. " 2701 C
3-8-93. " 2778 C
6-6-94. " 2978.
26-7-94. " 2537 C
2-10-92. " 1054 I.

Communicated to the Supdg Engr 1 Circle for information with reference to his No 2733 G O dated 29.2.96

15/5

To
The Chief Engr for Irrign
" Supdg Engr 1 Circle

Recd 19/5/96

Issue

Recd

15-5-96

DESPATCHED
29 MAY 96

D.C. 26